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FRENCH MICRO LESSONS

DATA MATION

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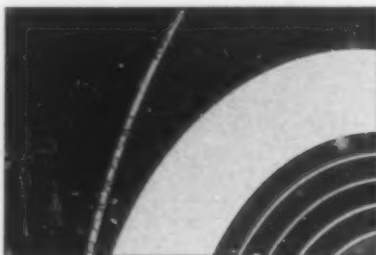
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produce an industrywide domestic order slowdown at precisely the time when all other environmental forces are favorable for the minicomputer companies.

"It's a most curious juncture in the history of the industry," he adds, "and frankly I see no light at the end of the tunnel until late in the year." Schulman notes that DG's aging 16-bit mini business virtually evaporated in the first quarter, a demise confirmed by DG. "Historically, this product line is the most sensitive barometer of all the major mini makers' revenue streams. Consequently, I believe that the industry has not yet hit bottom."

Faced with such a prognosis, the question facing DEC is whether its MicroVAX II—which, unlike DG's and Prime's offerings, is a market reality now—will attract a host of new users or simply cut into sales of DEC's more profitable minis. Yet the latest DATAMATION/Cowen & Co. survey of 5,000 installations shows that most potential new users are still almost totally preoccupied with digesting and integrating the IBM PC into their mainframe core (see "Up, Up, and Away," May 15, p. 32), meaning that the market for departmental superminis is still relatively small.

More to the point, DEC still doesn't support the IBM PC, and probably won't until late in the year or early next year, according to industry observers. "This is an absolute prerequisite for selling to the Fortune companies," says Dale Kutnick, an independent consultant in Wayland, Mass. "Though DEC's MicroVAX II is two years ahead of IBM, and is the right box for its engineering users and vars, it's the wrong box for corporate America at this time. DEC is moving too fast for the Fortune companies," Kutnick says.

A DEC spokesman counters, "The best hedge against a recession is the right product. There is always a market for the right product, and we believe the MicroVAX II is that product." Sources say DEC hopes to sell 20,000 units by the product's first birthday next July, but, as Schulman points out, a lot of 1985 orders will be at the expense of the low-end VAX 725 and 730 and the medium-sized 750—"all of which carry much higher margins." What's more, Schulman says, the company might not be able to ramp up production of its 8600 and MicroVAX II fast enough over the next few months to replace lost demand for other VAXs. "Evidence of self-impact at the high and low end is already widespread."

Though the MicroVAX may not be the right box for the large corporations—which DEC disputes—it already has many ardent admirers within the var community because of its unparalleled price/per-

formance. Applicon, a var in Burlington, Mass., that buys DEC's computers and then packages them into CAD systems, waxes lyrical about the tiny VAX and says it expects to order 200 of them in the first six months after they become available.

"Should either the U.S. economy or the corporations manage to get back in step with the minicomputer companies through the balance of the year, they should all take off like rockets," Schulman says. If not, the MicroVAX II may soon wind up right back where it was introduced—as an exhibit in a computer museum. ●

DBMS

IBM BOUNCES BACK

A host of major enhancements to relational database management system packages are coming in September.

by Tom McCusker

Two years ago when it announced a relational database management product called Database 2, IBM not only blessed the relational database concept but also, as it soon became clear, the products of such savvy independent organizations as Applied Data Research, Cullinet Software Inc., and Cincom Systems.

Last year, as DB2 began to seep out among a small, controlled user base, which today numbers about 200, IBM gave the competition more to crow about than just its approbation: it was becoming

evident that DB2's shortcomings would give the independents a commanding lead for many reasons. Not the least of these was IBM's commitment to prolonging the life of its aging hierarchical Information Management System approach to database management, while limiting DB2 essentially to end-user applications in the IBM-coined "information center."

So, rather than bring to a screeching halt a rash of competitive DBMS software evaluations, IBM's announcement accelerated these evaluations. A host of user surveys indicate that the independents have placed the majority of DBMS packages in IBM system sites.

A DATAMATION/Cowen & Co. study of 2,947 IBM and IBM-compatible sites (see "Up, Up, and Away," May 15, p. 32) found Applied Data Research and Cullinet to be capturing a hefty 41% of those planning to install a mainframe-type DBMS product over the next two years. Those showing a preference for IBM's products during the same period dropped to 33% from the 40% that had installed IBM products this year.

A study by Computer Intelligence Corp., La Jolla, Calif., and Dataquest, San Jose, two market research firms, found that installations of DBMSs and fourth generation languages by nine independents rose 9% between last October and this April. IBM's increase languished at 2%.

Other market studies conclude that IBM is in trouble—to the extent that a giant bothered by gnats can be considered to be in trouble. International Data Corp. recently predicted that nearly half of the DBMS sales made in 1988 will be made by independents. Studies by the Gartner Group Inc., Stamford, Conn., suggest that IBM's data management products are weak in most functional areas.

Don't count out IBM, however. Consultants and users familiar with the

FIG. 1

DBMS MARKET SHARE CHANGES, 1985 TO 1986

PRODUCT (VENDORS)	(IN PERCENT OF 3033/308X SITES)		(43XX,370)	
	1985	1986	1985	1986
IMS (IBM)	30	0	9	4
DL/1 (IBM)	5	2	25	10
SQL (IBM)	5	9	6	12
DB/2 (IBM)	0	22	—	—
IDMS & R	17	26	20	27
ADABAS (Software AG)	11	4	7	10
Datacom (ADR)	4	17	8	15
Total (Cincom)	5	2	9	6
Other	23	18	16	14

Source: Datamation/Cowen & Co. survey, Jan. 1985

NEWS IN PERSPECTIVE

turf say that Big Blue is about to unleash some potent new functionality that will threaten the DBMS upstarts.

Specifically, they think DB2 is a lot stronger than IBM is making public. "Users with whom I talk tell me DB2 performs better and has more features than IBM has presented to them," says consultant Steven Pfenninger, president of IMS Consulting Inc., Encino, Calif. He acknowledges, though, that for the most part, IBM customers are remaining with IMS in production environments and are

using fourth generation languages instead of DB2 in the information center. "But wait until this fall, when IBM announces new releases to the product," Pfenninger warns. He suggests that its features will be strong enough for the company to quickly regain the momentum he says it lost to the independents.

The independents, noting that they have a commanding lead both in the development and availability of relational systems, contend they can remain ahead of anything IBM offers. "As they improve

their DBMS, so will we," says Martin Goetz, president of Applied Data Research, who adds that ADR will have a product announcement in September, about the same time as IBM's expected new release of DB2. He said ADR will enhance security features and offer a 20% to 40% improvement in the speed of Datacom DB, ADR's relational DBMS.

Cullinet and Cincom Systems continue to add applications software packages that run with their respective DBMSs. At a time when packages are proving to be considerably more cost-effective than software developed in-house, customers are snapping up both the software package and the DBMS. Cincom's relational system is called the Totally Integrated System and Cullinet's is a version of IDMS called IDMS/R. Cincom, which has installed some 240 TIS systems, including some at sites that are converts from IBM's IMS DC, claims it will generate revenues of \$70 million this year from TIS, or about 65% of its total revenues, projected at

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\$110 million to \$115 million. Cullinet says it has installed 1,000 copies of IDMS/R and expects to double that number by year-end. ADR has about 900 installations of Datacom DB.

It seems to be just a matter of prospecting. "IBM will get lots of sales without us ever knowing," says Dennis Yablonski, president of Cincom Systems. "But we have a very good track record in beating IBM when we know there's an evaluation under way."

Ronald G. Ross, editor and publisher of the *Database Newsletter*, Boston, cites Cullinet Software's "uncanny market sense for people with bucks to spend." Others may have better products, Ross adds, but none have the intimacy with the buyer that Cullinet has. Informal conversations with db managers who have opted for Cullinet's products repeat that theme—while another vendor may have a slightly better product than Cullinet's, no one else comes close to offering a more highly integrated package of products.

As long as IBM with its DB2 product follows what is being called a dual strategy, it will remain vulnerable to independents' offerings, market researchers say and competing vendors hope. This dual strategy stems from IBM's need to protect its many thousands of IMS users. It recommends that its relational products coexist with, not replace, IMS. When it announced DB2 in June 1983, IBM said the product "may coexist with and complement IMS," and added that it "will provide an excellent foundation for decision

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support systems in information centers."

What IBM was saying, explains Goetz of ADR, is that it was "recommending a relational database system for information centers and PC users and a hierarchical/network database product for production users... and, in addition, that the data be stored in two databases and transferred between databases as often as necessary to keep the data 'up-to-date.'"

He charges that this is based on a fallacy that end users don't need current operational data and instead can access and update "almost-current data." The fallacy will be wiped away, he adds, as simple PC applications grow in complexity and function, as they are wont to do, and thus evolve into major applications. "If these applications use old data they

ADR and Cullinet have strong migration packages for IMS users who want a relational DBMS.

can thoroughly poison the best conclusions of an organization's decision makers." Goetz, however, thinks IBM's dual strategy will go on for another five years. Paul Hessinger, director of advanced technology research for Computer Task Group, a Buffalo consulting organization,

says IBM simply can't overlook the technical complexities in many IMS applications. He believes it is a "borderline impossibility" that IBM will soon change its dual database approach.

It's not that IBM couldn't provide a way for users to migrate easily from IMS or DL/I (products, incidentally, that are believed by market researchers to have generated more than half a billion dollars of IBM's \$3.2 billion in software revenues last year) to a relational product. At present it doesn't think that's the way to go, according to several observers.

Ross of Database Newsletter recalls how IBM in the late 1970s announced that it wouldn't introduce a relational product until it had a good migration path. That hasn't happened, he noted, adding that IBM introduced a relational DBMS simply because the IBM-generated concept of the information center created a need for one.

Into the migration path void marched the independents. ADR recently announced DL/I Transparency, an upgrade package that offers an automated migration path from DL/I and IMS to Datacom DB. The \$40,000 (\$30,000 for DOS environments) upgrade consists of utility programs that automatically redesign the database for Datacom DB, load

and convert the actual data, populate the database dictionary, and provide an ongoing basis—a layer of software that allows older DL/I and IMS applications to make calls to the new relationally structured data.

The product, which is being tested at a dozen user sites, will be available in August. Cullinet's product, Escape DL/2, has been in use two years, but the company says it isn't a fully automated tool.

Some sources expect IBM's new release to include microcode assists. Others say DB2 isn't ready to be microcoded yet.

Some 70 DBMS/R sites are using the product. Cincom doesn't provide automatic tools to convert IMS users to TIS, even though 40% of its 240 TIS customers are either new users or users migrating from the IMS family, albeit with fewer applications and thus less complicated conversion problems. "These users simply rewrite their systems," explains Cincom's Yablonski.

TOTAL users converting from Cincom's hierarchical DBMS to TIS don't change programs or files. Instead, they use utilities that enable programs to run in a compatibility mode without the need

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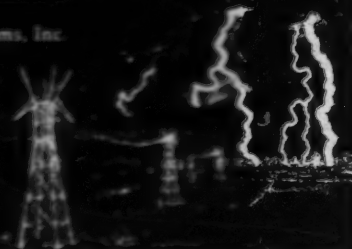
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for an intermediary kind of software, according to Yablonski.

IBM has told investors of its long-term goal of 35% annual growth rate in software revenue. So it must protect its DBMS market, which represents nearly a fifth of its total software revenues. How will that be done?

Pfrenzing believes that the company will win over customers by offering better performance with its next release of DB2, perhaps even presenting a product that questions the true "relational" nature of competitors' products. For example, he says IBM will announce improvements in the referential integrity of the relational product as well as an improvement over DL/1. He says DB2's performance is only about 50% to 60% that of DL/1. Referential integrity, an essential function in relational database products, applies to logical relationships. It dictates, for example, that a purchase order may not be written for a nonexistent vendor and, conversely, that a vendor cannot be removed from the database if purchase orders are assigned to the vendor. If these relationships aren't defined the system cannot enforce them.

Relational integrity is a feature not fully supported on existing relational systems, contends Pfrenzing.

Other sources expect IBM's new release to include microcode assists—the placing of a large number of instructions into a much smaller number of instruc-

"If these applications use old data they can thoroughly poison the best conclusions of an organization's decision makers."

tions that are in microcode. This enhances execution speeds. Others have doubts. "IBM's DB2 isn't ready to be microcoded yet," says Ross, noting that microcoding also means freezing part of a design.

In all of this speculation, one fact remains clear: IBM has lost and continues to lose ground to independents. Its new release could help it regain that lost territory, even if it doesn't give IBM a product superior to that of its competitors. All IBM has to do, say the observers who follow software trends, is give an indication that it intends to remain in the relational market for keeps and that its customers can feel comfortable that it has their interests in mind. Another fact is clear: large users are looking at competitive offerings. What these users see may not be the appeal of remaining in the IBM fold. Rather, they may be drawn to the products of the independent vendors, who are under great pressure to offer the kind of productivity that end users are demanding today. ©

NETWORKS

SNA TO LAN LINKS SOUGHT

Software to tie local area networks to an SNA mainframe environment is now available. But are users ready for it?

by Irene Fuerst

Entrepreneurs can be like children. The first kid on the block with a new toy has a certain cachet, a *je ne sais quoi*. Big kids feel the same when they start making toys—they want to sell the first one. But when your toy is made with microprocessors, watch out for the Big Blue schoolyard bully. Not to mention the fact that the other kids may not be ready to play.

All of this comes to mind when one hears California Network Systems, a Milpitas, Calif., startup, claim to be shipping the first gateway to SNA environments from the IBM PC Network. Its gateway simply links a network as a whole to an SNA mainframe, replacing expensive point-to-point links over modems or using IRMA boards, coax, and special software for a mere screen transfer. The CNS package also acts as an ASCII-to-SNA protocol converter.

Called the PC Network/SNA 3270 GateWay, CalNet's product emulates a 3274 cluster controller, allowing pcs on the network to emulate 3270 terminals. CalNet's product line extends from a software package to be used with the PC Network boards to a network server.

CalNet vp Tom Longman acknowledges that IBM has also announced a gateway, but says that his company's product was actually first to ship. An IBM representative says the company's PC Network/SNA 3270 Emulation Program has been available since April for a per user license fee of \$375. IBM doesn't seem to be shipping many networks, though, according to outsiders, a fact that could spell trouble for CalNet. IBM declined to provide any PC Network shipment information. IBM has also announced a Series 1 PC Connect that lets the minicomputer act as a gateway between a PC Network and a mainframe running SNA.

"IBM announced a software emulation package, but it's not yet available," says Longman. The IBM product, which requires an IBM PC dedicated as the gateway, costs between \$2,000 and \$4,000 for 12 users, he claims. CalNet's entry-level

An ambitious project to bring computing to children results in angry micro makers in Europe and the U.S.

FRENCH MICRO LESSONS

by James Etheridge

It began with customary French idealism. In January France's Prime Minister Laurent Fabius announced a \$200 million project designed to catapult a generation of French schoolchildren into the computer age. The ambitious plan to install 121,500 microcomputers in French schools was described by Fabius as "an essential element in the modernization of the country."

Two months later that project had angered micro suppliers in both the U.S. and Britain, raised awkward questions about French protectionism, and led to the resignation of the man behind the plan, Jean-Jacques Servan-Schreiber, head of the Paris-based World Computing Center.

That's the trouble with ideals: they often get poisoned by practicalities. Social idealism has been the hallmark of most French governments since the revolution. In recent years that national idealism has been rigorously applied to France's information technology sector. The result has been a plethora of projects that affect local dp firms as well as the general public.

The French government has completely reorganized the local dp industry, merging the old CIT-Honeywell Bull, Transac, R2E, and Sems companies into Groupe Bull. The country has also begun doling out money to user companies in an effort to help them introduce new technology. In the public sector, it has started replacing paper telephone directories with a videotex database that can be accessed through free terminals.

The microcomputer scheme for schools, which is called Informatique pour Tous (Computing for All), is only one of many micro programs being undertaken by the French administration. The Computing for All effort, however, is much more ambitious than the others, since it's aiming to have 155,000 machines installed by year-end. At the beginning of the year, 35,000 micros had been shipped to French schools.

The other microcomputer projects involve the French PTT, which plans to install 20,000 micros along with videotex and point-of-sale (POS) terminals in post offices around the country. Police stations will also be equipped with micros at the rate of

500 per year over the next several years. France's justice and finance ministries will also be moving to micros as part of their overall office automation efforts.

What makes the school project so important is the fact that it could well set a precedent for the way micro contracts in France, and even elsewhere, are handed out. That's why the international micro vendors were anxiously awaiting the outcome.

Anticipating massive sales from the mammoth project, French manufacturers jealously fought to preserve their privileged position in a market they consider to be their birthright. Foreign suppliers, particularly Apple and Hewlett-Packard in the States and Sinclair and Applied Computer Techniques (ACT) in the U.K., also fought hard for the business. Reacting with philosophical resignation to the French government's plans, these suppliers recognized that the local producers would inevitably get the lion's share of the business.

That recognition was partly due to actual experience in the French market, which is notoriously difficult for foreign vendors. It was also partly due to remarks

made by the man responsible for the school program, Gilbert Trigano, chairman of the successful French holiday firm, Club Méditerranée. Trigano was appointed head of a special interministerial commission that was set up by Prime Minister Fabius to promote new areas of education and training. Despite the fact that there's no government mandate on which wares to buy, there was general support for Trigano's comment that while "there's no question of automatically rewarding French industry, it is inconceivable not to give that industry a real opportunity in the project."

FRENCH SNAP UP CONTRACTS

And that is just what happened. In fact, very few crumbs from the Education Ministry's table fell into the laps of foreign vendors. French suppliers, who snapped up contracts for all the 108,000 home/educational machines, also won orders for 11,500 of the 13,700 professional micros (see Fig. 1). What is more, those contract awards clearly don't reflect the reality of the French micro marketplace, which is dominated by U.S. and U.K. firms.

The big loser in all this was Apple. After company representatives were invited to a rare lunch with President François Mitterrand to discuss the project, the U.S. firm, which was once considered to be the front-runner in the competition, was not even asked to bid. That was a particularly bitter pill for Apple to swallow, since serious consideration had been given to installing up to 300,000 Macintoshes in French schools and public computing workshops. The government's micro machinations also came as a blow to Servan-Schreiber, who originated the Computing for All concept. Servan-Schreiber resigned after the Apple snub and headed for the States (see box).

Once the Apple option was discarded, the bulk of the business went to two local companies. Bull got a big contract for its IBM-compatible Micral 30 machine and Thomson-CSF inked a deal for its small TO-7 and MO-5 home micros. While those French contracts are juicy, they nevertheless pay unspoken homage to IBM, which has succeeded in imposing MS/DOS as the market standard. The choice of the MS/DOS

FIG. 1

WHO SOLD WHAT IN THE FRENCH SCHOOL PROJECT

PROFESSIONAL MICROS*

Bull	6,500
SMT-Goupil	3,000
Léonard	750
Matra	750
Foreign Suppliers	2,700
TOTAL	13,700

HOME MICROS*

Thomson	93,000
Matra	6,000
CGCT	9,000
TOTAL	108,000

*Estimates

standard came nicely on cue for Bull, which had launched its Micral 30 last December. It was no surprise that the other French manufacturers of IBM-compatibles—Léonard, SMT-Goupil, and Matra—were also given slices of the micro pie.

HP NOT ASKED TO BID

With the exception of Olivetti, which owns local company Logabax, the only foreign firms that were initially invited to bid on the professional micro deal were IBM and Britain's ACT, which has had a subsidiary in France since May 1984. Hewlett-Packard, which has had a micro manufacturing plant in France for years, wasn't even asked to bid—much to its annoyance.

Another company that was annoyed was the U.K.'s Sinclair, which wanted to compete for the home micro contract with its Spectrum machine. The British micro maker was eventually asked to bid, but only at the last minute after chairman Sir Clive Sinclair intervened. In a sharply worded letter to Prime Minister Fabius, Sinclair pressed for the Spectrum to be considered and threatened to call in the European Commission to force France to open the bid to other European companies. Following the French decision to go with national suppliers, British members of the European Parliament did indeed ask for an investigation into France's protectionist policy—a policy that contradicts pan-European trade rules and the strictures imposed by the General Agreement on Tariffs & Trade (GATT).

The French, left with egg on their faces, obviously didn't anticipate the animosity they'd raise by buying local wares. The controversial contracts were awarded with the clear intention of boosting the French microcomputer industry. But that boost may in fact only benefit Thomson, which could now jump ahead of Sinclair to capture first place in the home micro market. And that may have happened anyway, since Thomson's 18% market share in 1984 was already close to Sinclair's 21%, according to Intelligent Electronics Europe in Paris. The micro research house predicts that 80,000 home computers will be shipped in France this year. Government purchases will account for around 13% of those shipments. That means big business for Thomson, which will derive up to 50% of its sales from the government micro buy.

In the professional sector, government orders will represent less than 10% of total shipments. This is of course good news for Bull, which will reap most of its micro revenues from the government award. Bull's Micral 30 has also been sell-

MIFFED OVER THE MICRO

What French children probably won't know when they sit down for the first time in front of their schools' new microcomputers is that the man who created the government's Computing for All plan resigned because of the machines they are using.

A mixture of visionary, egotist, and political catalyst, Jean-Jacques Servan-Schreiber first announced his dream of a nationwide network of computing workshops last summer. In that dream he envisioned 50,000 computer centers, each equipped with five or six microcomputers. These computer literacy centers, spread throughout France, would initiate the French citizenry in the use of technology, which he believed could liberate people from their most humdrum and arduous activities.

In his vision of things, the liberator he chose was Apple's Macintosh. Apple, which agreed to make the technology available to France on very attractive terms, was going to grant a manufacturing license to a local company. The scheme would have cost up to \$600 million.

The French government thought that was biting off more than it could chew. So instead it went for local wares, saving half the cost on a scaled-down project that would also provide a crutch to the ailing French microcomputer industry.

Servan-Schreiber was miffed. First of all, he objected to Apple being too out in favor of French machines, while he didn't feel were as appropriate as the Macs. He also was not happy about the fact that the "Servan-Schreiber Plan"

ended up as the "Fabius Plan," named after the French prime minister who introduced it.

To demonstrate his disagreement with the government, Servan-Schreiber resigned from his top post at the World Computing Center at the end of March when his job came up for renewal. In his letter of resignation to President François Mitterrand he wrote, "My earlier fears about the government's choices in the delicate and critical field of social computing [hardware and software] have only become more acute, especially regarding the project for a network of community workshops." He went on in a similar disillusioned tone: "Only the right choices in the field of computing, advanced and daring ones if necessary, can liberate the immense human resources of our people."

On that note, he left the project, his job, and the country—temporarily at least. He also left the World Computing Center to carry on without its contentious leader. And while there is no doubt that he felt bitter about the school program, his reasons for quitting may have had more to do with the center than with the micros that French schoolchildren would be using.

Set up to preach the gospel of mass computerization and do research into leading-edge dp, the World Computing Center was beset by divisions and disagreements from its inception (see "Center of Controversy," June 1983, p. 240-31). What's more, French government auditors had the place under close scrutiny. So Servan-Schreiber's exit, whatever the reason behind it, seems to have come at an opportune time.

ing well outside government circles. Intelligent Electronics expects Bull's share of the professional micro market in France to rise to 10% this year.

The government, however, can do nothing to prevent IBM from taking the number one spot in the French business micro market. IBM, which had 27% of the local micro market last year, is expected to have a hefty 37.5% share this year.

So in the long run, maybe even the short run, those fat local micro contracts awarded by the government will do little to change the micro scene in France. What they will do is get the ball rolling on the Computing for All project, which should be a boon to the French public.

By the end of this year, each of France's 33,000 small secondary schools will get a home micro. The 8,000 high schools and 2,300 colleges in France will each get a cluster of six home microcomputers that will be connected to a professional machine. France's 400 universities will also each receive 10 professional micros. All of this hardware will be supplied with a range of educational software, most

of which has been developed in France.

The major obstacle to implementing the computer literacy program this year is training the thousands of instructors needed to teach the children how to use the new microcomputers. Training has also been the big bugbear in Britain, which has been shipping micros to schools since 1980.

In the U.K. this computer wealth has not been shared with the general public. This will not be the case in France, where computer workshops in colleges and universities will be open to the public. Meanwhile in schools, computing will now become part of the regular curriculum. Students will be required to spend at least 1½ hours in front of the screen. The result the government hopes for is a new computer culture among France's younger people.

But while it may be characteristic of the French to consider computing as a culture rather than as a mere tool, abstract idealism doesn't help turn computer literacy into economic strength. It remains to be seen whether this massive investment in cultural evolution produces the expected financial rewards. ●

Computer advertising is on the upswing, reflecting some fundamental trends in the industry.

COMPUTER ADVERTISING, 1985: THE \$2.1 BILLION PRIZE

by Efrem Sigel

Veteran readers of the *Wall Street Journal* may have felt they were in a time machine this spring when three silvery bullets kept turning up in issue after issue. But it was not the return of the Lone Ranger in trip-lets: the legend next to the ammunition read, "We're Gunning for IBM." The ads were the start of Wang's spring offensive—and a most costly one—for its VS system, against the IBM System/36. In a three-week period beginning Feb. 20, Wang ran the equivalent of 12 full pages in the *Journal*, at a total cost of around \$900,000. The ad campaign, developed by Boston agency Hill, Holliday, Connors Cosmopolis, could hardly be ignored. "Just give us one shot and we'll blow IBM off your short list," the ads threatened.

Wang's "marketing problem," as described by a company public relations officer, was to get the attention of data processing directors and top management in order to show that "at the departmental level, Wang has a better solution" than IBM.

In such a situation, the purpose of advertising is to achieve awareness among top managers who don't normally hang out with computer salespeople. Joseph Grimaldi, senior vice president at Mullen Advertising, Beverly Farms, Mass., which is handling a heavy schedule of ads for Apollo Computer, Chelmsford, Mass., explains the rationale. "When you're talking about a high-cost item [like a multihundred thousand dollar network of Apollo's design

workstations]," he says, "someone in management wants to know about it—and wants to feel comfortable about the supplier." Suppose it comes down to a one-to-one choice between another supplier and Apollo, Grimaldi nauses, "The last thing you want is for someone sitting across the desk to say, 'Who?' when your client's name is proposed."

This double target—general management as well as dp specialist—is much in vogue for mini and superminicomputer systems suppliers these days. At Tandem Computers, Cupertino, Calif., which began a print campaign around the theme "computer fat" early in 1985, advertising manager Claudia Hudson explains the reasons for trying to reach top corporate decision-makers as well as dp/MIS directors.

"Our systems are typically bought by a steering committee," she says. "The chief financial officer often sits on it, along with another member of senior management." It's the data processing experts who bring in a recommendation of what to buy, but it's the financial and general managers who sign off. And at the end of the nine months that it takes the leading maker of fault tolerant computers to close a typical sale, it doesn't want to lose out because the financial vice president has never heard of Tandem.

What is striking about the advertising strategies of Wang, Tandem, and Apollo is that none of these companies lives and dies from sales of high-volume personal computers, where advertising, brand recognition, and retail razzmatazz are regarded

as crucial. Wang, Tandem, Apollo, and other firms with growing ad budgets—Digital Equipment Corp., Data General, Prime, Computervision—are selling systems to medium and large customers. The value of a single order can range from \$25,000 for a bare-bones mini to hundreds of thousands of dollars for a Tandem Non-Stop, a VAX, or a Prime supermini. All these companies employ hordes of well-paid salespeople and customer service reps to make the sale and keep the customer happy. So why advertise?

The reasons include all the ones that ad men usually give—to educate and inform the customer, to stimulate demand, to pull customers into the showrooms or onto the trade show floor, to open the doors to salesmen, to make those who've already decided feel comfortable about their choices. And of course there's another, compelling reason: when your competitors are advertising heavily, you often have no choice but to go along.

BASIC INDUSTRY TRENDS

The growing volume of computer advertising reflects a couple of fundamental trends in the computer industry. One is the need to explain products to an ever larger and more diverse audience—a need that has been made especially apparent by the rise of the personal computer. Another is the high degree of competition in many—but not all—segments of the industry. In mainframe computers, where IBM's dominance is overwhelming, neither IBM nor its beleaguered

If your competitors are advertising heavily, you have no choice but to go along.

competitors spend much on advertising. But in superminis, office automation systems, CAD/CAM workstations, personal computers, software and peripherals, where the number of competitors ranges from several to several dozen, advertising is on the upswing.

Communications Trends Inc., of Larchmont, N.Y., maintains a database of advertising spending by more than 100 computer companies in every aspect of the business, from mainframes to minis to pcs to software and services. An analysis of these data shows the following trends.

Worldwide advertising outlays by U.S. computer companies are up 191% since 1981, to \$1.87 billion from \$640 million. In the same period, the percentage of industry revenues going for advertising has increased from a little under 1% in 1981 to 1.6% in 1984. Fig. 1 shows the growth in computer advertising as projected from 101 companies that represent more than 90% of industry revenues.

Not only has total advertising grown significantly, but its makeup is changing. Computer periodicals, ranging from *DATAMATION* and *Computerworld* to *Byte* and *Personal Computing*, still carry the heaviest volume of ads (\$346 million worth last year, up from \$164 million two years earlier). But the fastest growing choices have become television (\$264 million in '84, up from only \$78 million in 1982) and business magazines and newsweeklies (\$258 million in 1984 vs. \$110 million in 1982).

The increase in computer industry advertising outlays is closely tied to the rise of the personal computer, the broadening of the base of computer buyers and users from a few hundred customers in the 1950s to hundreds of thousands in the '70s to millions in the '80s. As the computer audience has taken on some of the characteristics of a mass market—at least in gross number—the need for techniques of mass communication, especially advertising, publicity, and promotion, has correspondingly increased.

Fig. 2 shows the relation between personal computer advertising and all computer advertising between 1982 and 1984. Personal computer advertising is up by 332% in this three-year period, and now accounts for more than half of all computer advertising. Nevertheless, advertising for other computer products and services has still grown by an average of 20% compounded annually over the past two years.

Who spends the most to advertise computer products and services is only partially related to absolute size. Although advertising averages only 1.6% of revenues

FIG. 1

GROWTH IN WORLDWIDE AD SPENDING, U.S. COMPUTER COMPANIES

1981-84 (IN \$ MILLIONS)

	1981	1982	1983	1984	% CHG., 1981-84
Advertising outlays, 101 companies	575	768	1,256	1,697	195.1
Advertising outlays, entire industry	640	850	1,380	1,865	191.4
Advertising as percent of revenues	.89	1.0	1.43	1.64	

Source: Communications Trends Inc.

FIG. 2

PERSONAL COMPUTER ADVERTISING IN RELATION TO ALL COMPUTER ADVERTISING

1982-84 (IN \$ MILLIONS)

	1982	1983	1984	% CHG., 1981-84
Personal computer advertising	220	577	951	332.3
Other computer advertising	630	803	914	45.1
All computer advertising	850	1,390	1,865	119.4
Personal computer advertising as percent of total	25.9	41.8	51.0	

Source: Communications Trends Inc.

FIG. 3

10 LARGEST COMPUTER ADVERTISERS

1984 (IN \$ MILLIONS)

COMPANY	COMPUTER AD BUDGET	AS % OF COMPUTER REVENUE
IBM	518E*	1.2
Apple	180	11.8
Digital Equipment	91	1.6
Tandy	74E	8.1
Hewlett-Packard	65E	2.0
Commodore	62	4.9
NCR	60E	1.5
Control Data	42E	1.1
AT&T	40E	4.0
Wang	39	1.8
Total, 10 firms	1,171	1.8

*E = estimated. Other figures as reported to the Securities & Exchange Commission for calendar or fiscal 1984.

for the industry as a whole, many personal computer companies allocate 5% to 10% of sales to advertising, with some software companies spending as much as 12%. Yet mainframe companies, certain computer

services firms, and the vast array of oem suppliers in the industry usually devote under 1% of revenues, and sometimes as little as one tenth of 1%, to advertising.

IBM is the biggest computer advertis-

The purpose of computer advertising is to create awareness among top managers who don't hang out with computer salesmen.

er, but its proportion of industry spending is far less than might be expected from its size. Communications Trends estimates that Big Blue spent \$518 million on worldwide computer advertising in 1984; probably 70% of that total was spent in North America. Yet IBM's ad budget is only 1.2% of revenues. Whereas IBM accounts for 40.5% of the computer revenues of the 101 companies in the CTI database, its advertising outlays represent only 30.5% of combined ad spending by those companies. The next largest computer advertiser, Apple Computer, spends a third what IBM does, although its sales are less than one twenty-fifth as large.

ADS PLAY BIG ROLE FOR SOME

Moreover, for Apple and other big spenders, advertising has strategic importance that it will never have for IBM. It is hard to imagine the IBM board of directors agonizing over whether to approve a tv spot, as the Apple board reportedly did before airing the now famous "1984" commercial to launch the Macintosh in January '84. Or to imagine an IBM chief executive saying, as John Sculley did in November '84, that a huge advertising budget was one way of preventing Japanese domination of the American personal computer industry.

Fig. 3 lists the 10 largest computer advertisers in 1984 and shows their computer ad spending as a proportion of computer revenues. These 10 firms accounted for \$1.2 billion in spending, or an estimated 63% of all industry advertising last year.

Although IBM with its low advertising-to-sales ratio, and Apple, with its high one, are both anomalies, there is no denying that advertising decisions have become more central to the way a computer company presents products and deals with customers. When Tandem got rid of its agency of eight years and awarded its account to tiny Matsumoto-Herzog in Los Angeles, two members of senior management sat on the selection committee; the final decision went to the board of directors for approval.

At Wang, a spokesman said that the company's "gunning for IBM" ads went "right up the line" to president John Cunningham and chairman An Wang for approval. (As a measure of its touchiness on the subject, the company also clamped what it and the agency called a "gag order" on those involved in the advertising program.) Moreover, Wang continued to run the ads at a time when it was reporting highly disappointing financial news, including the revelation that sales growth in the January-March '85 quarter would be only 10%, the entire company would shut

FIG. 4

SELLING, GENERAL & ADMINISTRATIVE COSTS, 101 COMPANIES, 1982-84 (IN \$ MILLIONS)

CATEGORY	1982	1983	1984	% CHG., 1982-84
Total computer revs.	76,400	87,850	103,600	+ 35.5
SG&A costs	19,300	22,100	25,600	+ 33.0
as % of costs	25.2	25.1	24.8	
Computer advertising	768	1,256	1,697	+ 121.0
as % of SG&A	4.0	5.7	6.6	

Source: Communications Trends Inc.

FIG. 5

THE SLOWING RATE OF COMPUTER ADVERTISING INCREASES 1982-85

YEAR	TOTAL ADVERTISING	\$ INCREASE OVER PREVIOUS YR.	% INCREASE OVER PREVIOUS YR.
1982	850	210	32.8
1983	1,380	530	62.3
1984	1,865	485	35.1
1985P*	2,140	275	14.7

*P = projected

Source: Communications Trends Inc.

down for two weeks in July to get inventories back in line, and top executives would deal themselves a pay cut.

Compared with total marketing and administrative costs for computer companies, advertising is still a minor proportion. But it's growing. What the computer industry spends on selling, general, and administrative costs—SG&A—would be enough to run most countries of the world. The tab in 1984 was \$25.6 billion, or 25% of revenues. As Fig. 4 makes clear, this percentage has remained flat for three years—has in fact even edged downward—despite SG&A dollar expense rising 33%. Advertising, however, is taking a notably higher proportion of SG&A today (6.6%) than in 1982 (4%).

Software companies such as Applied Data Research, Cullinet, Computer Associates, and MicroPro have the industry's highest SG&A ratios—for these four the range is between 54% and 70%. The proportion reflects not so much high salaries or lavish spending at headquarters (though that may exist), but the fact that the cost of goods sold is very low for these firms; their products cost very little to man-

ufacture in quantity.

Because advertising is a reflection both of sales anticipations and sales results, trends in spending over time indicate not only where companies have been, but where they think they're heading. Watching the success of Apple, Compaq, Lotus, and Hayes—four successful personal computer companies that are very significant advertisers—many companies figured the way to break into the front ranks was by promoting heavily.

FEW WINS, MANY FAILURES

There are a few successes but many failures: Televideo doubled its advertising in fiscal '84, but sales fell 2%; Kaypro increased advertising fivefold but the company lost money; Data General went on tv to push its laptop portable and other new products, but conceded that sales were falling well short of expectations.

A fickle market for both minis and micros in 1985 is finally slowing the computer advertising stampede to a trot from a gallop: the Communications Trends fore-

A fickle market for both minis and micros is finally slowing the computer advertising stampede to a trot from a gallop.

cast is for a 15% increase in ad budgets this year, down from 35% in 1984 and from 62% in 1983. Fig. 5 shows the deceleration in the rate of growth over the past four years. Even so, more than \$250 million in additional advertising dollars will pour into the market in 1985.

John Sculley was always too smart to imagine that selling computers was very much like selling Pepsi. Many other people, however, both in computer marketing departments and in advertising agencies, have not understood that communicating the benefits of a computer is far more complex—and demands a different approach—than hawking soft drinks or breakfast cereal.

The most extreme cases of irresponsibility involve the avid promotion of non-products, as for example in Ovation's advertising of an integrated software package that was never shipped. More common, however, is the case of advertising claiming benefits that no product can deliver, certainly not one that takes as much work and investment as a computer system. Three software companies that have tried tv in the

past year—Lotus, Ashton-Tate, and Culinet—have all produced commercials ranging from the incomprehensible to the downright silly, by trivializing what it is they have to offer.

But these companies aren't the only perpetrators. There is an irritating aspect to much of Apple's Macintosh advertising, one which indicates that the Mac's slow penetration of the corporate market has as much to do with Apple's misunderstanding of that market as with business conservatism. For a large company to adopt a new system like Macintosh in volume means a massive re-creation or conversion of files, not to mention plenty of ongoing, routine typing and data entry—mundane, time-consuming tasks that are barely acknowledged in Apple's cutesy "point and click" copy.

In contrast, most of IBM's advertising is commendable for its understatement and sense of proportion. Even the humorous and widely appreciated Little Tramp commercials for the PC are properly hedged; the voiceover tells the listener that with an IBM PC a person can manage his

business better, not that the millenium is at hand.

Whatever the slowdown in the rate of growth in 1985, big computer advertising budgets have become a fact of life for the industry; there is no going back to a less promotional era. Because one of the contributions of advertising is increased knowledge and awareness, computer advertising has played a role in creating rising expectations among all computer customers. This process ultimately will work to the advantage not of companies that have the best advertising, but of those who produce products that are worthy of their promotional claims. A tough standard, yes—but who can blame customers for applying a yardstick that computer advertisers have taught them to wield? ④

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Most people think heart disease happens only in the elderly.

It happens in children as well. Things like rheumatic heart disease and congenital heart defects. Each year, nearly one million Americans of all ages die of heart disease and stroke. And 20,000 of them die from childhood heart diseases.

The American Heart Association is fighting to reduce early death and disability from heart disease and stroke with research, professional and public education, and community service programs.

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